Finished ☐

Time: _____

Practice

8th Grade

Math MSP

Name: _____

Date: _____

Math Teacher: _____

Do Not Open Until Your Teacher Tells You

1. 8.1.A

Look at the equation.

$$\frac{r}{6} + \frac{2}{3} = 9$$

Determine the value of r in the equation.

- A. $r = 40\frac{1}{2}$
- B. $r = 50$
- C. $r = 58$
- D. $r = 104$

2. 8.1.A

Determine the value of y that makes the equation true.

$$3y = \frac{y - 15}{2}$$

Write your answer on the line.

What is the value of y? _____

3. 8.1.A

Determine the value of x that makes the equation true.

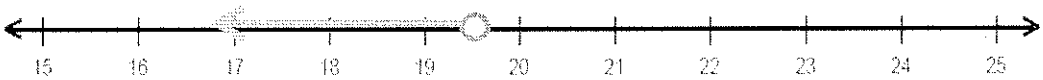
$-3x + 34 = 5x$

- A. $x = 4.25$
- B. $x = 6.2$
- C. $x = 17$
- D. $x = 68$

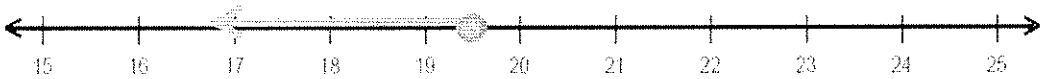
4. 8.1.B

Determine the solution of $4x - 21 > 57$ on the number line.

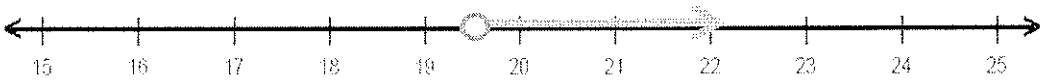
○ A.



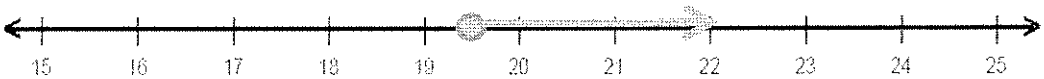
○ B.



○ C.

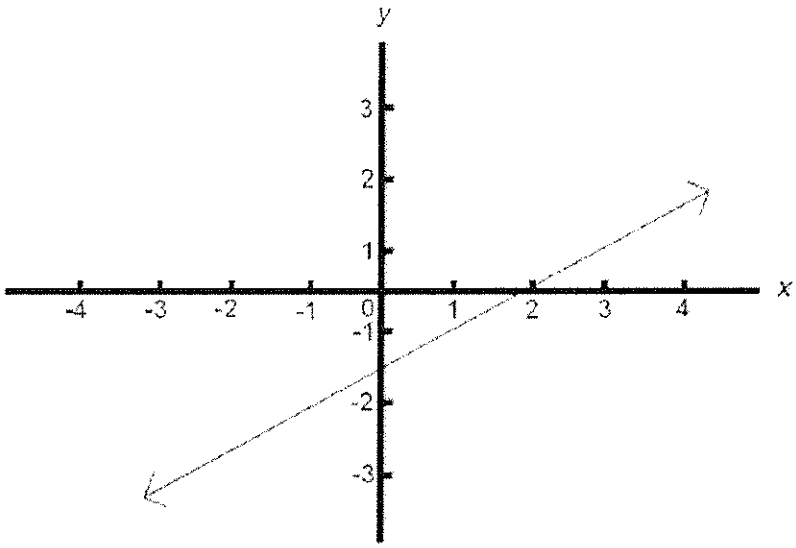


○ D.



5. 8.1.C

The graph represents a linear function.



Which statement describes the graph of the linear function?

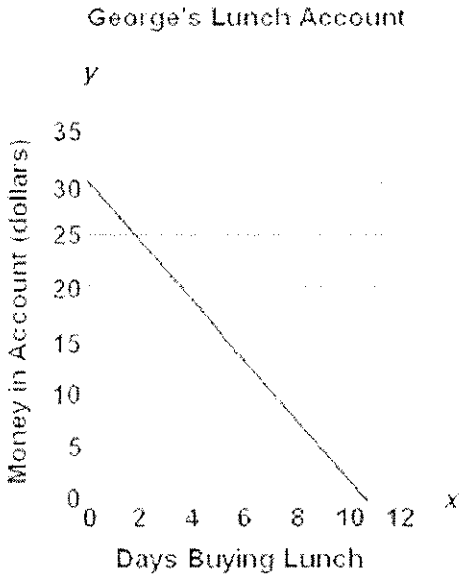
- A. The x-intercept of the line is negative.
- B. The y-intercept of the line is positive.
- C. The slope of the line is negative.
- D. The slope of the line is positive.

6. 8.1.C

George sometimes buys lunch at school. He has money in an account that is used to pay for the cost of each lunch. The graph represents the amount of money in George's account based on the number of days he buys lunch.

Let x = the number of days he bought lunch.

Let y = the amount of money in dollars in George's account.



Which equation best represents the graph?

- A. y = 30 + 2.75x
- B. y = 30 – 2.75x
- C. y = 30 + 10.5x
- D. y = 30 – 10.5x

7. 8.1.D

What is the y-intercept of the linear function $4x + 3y = -24$?

- A. $(0, -6)$
- B. $(-6, 0)$
- C. $(0, -8)$
- D. $(-8, 0)$

8. 8.1.D

The table represents a linear function.

x	y
−2	0
−1	9
0	18
1	27
2	36

What is the slope of the linear function?

- A. -9
- B. $-\frac{1}{9}$
- C. $\frac{1}{9}$
- D. 9

9. 8.1.D

Determine the y-intercept of the equation.

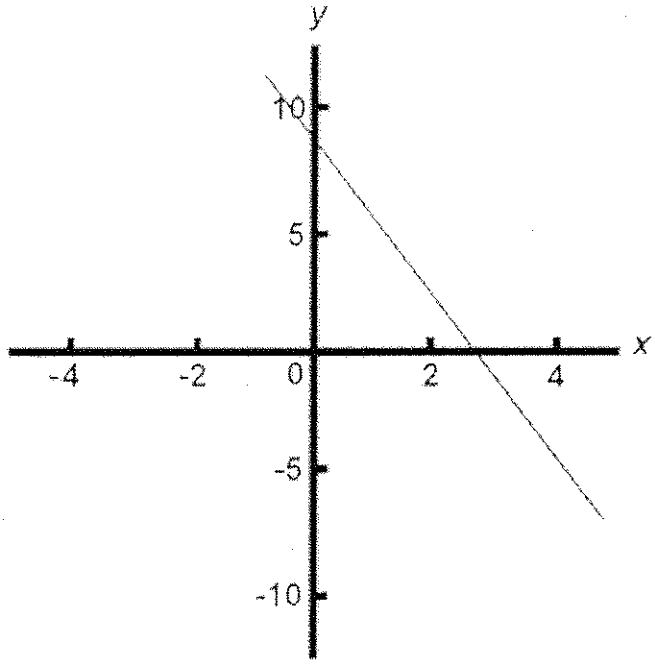
$$y = \frac{1}{2} + 3x$$

Write your answer on the line.

What is the y-intercept? _____

10. 8.1.E

The graph shows the temperature for one night in February. In the graph, x is the time in hours from 6 P.M. and y is the temperature in degrees Fahrenheit.

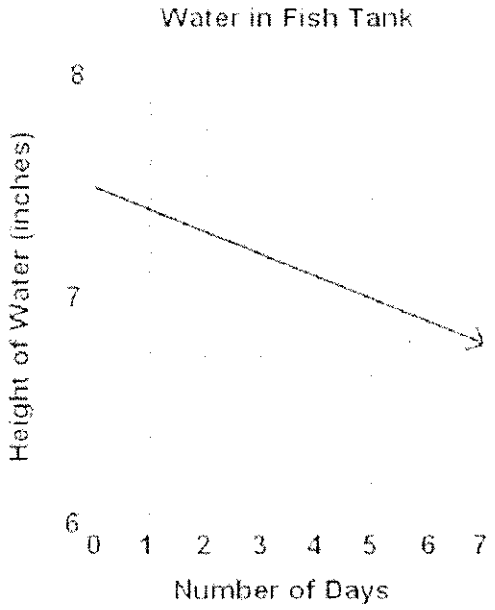


What does the slope of the line represent?

- A. The temperature at 6 P.M.
- B. The temperature each hour.
- C. The number of degrees the temperature dropped each hour.
- D. The number of degrees the temperature dropped since 6 P.M.

11. 8.1.E

Dimitri's family has a fish tank. The height of the water in the fish tank during one week is represented by the line on the graph.



- Describe what the y-intercept of the line represents in the situation.

- Describe what the slope of the line represents in the situation.

12. 8.1.F

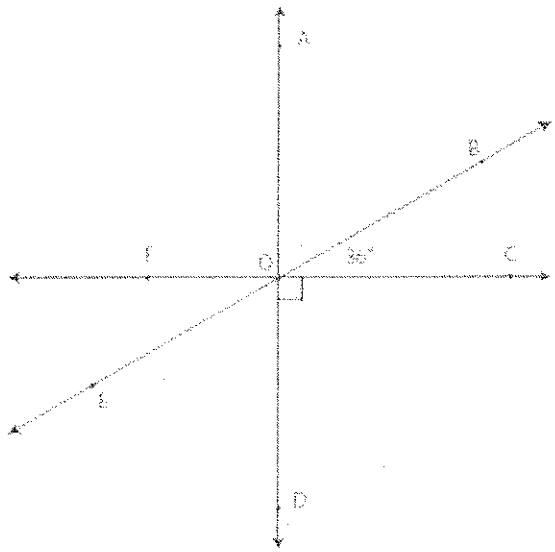
Mike and Tim leave their houses at the same time to walk to school. Mike's walk can be represented by $d_1 = 4000 - 400t$, and Tim's walk can be represented by $d_2 = 3500 - 250t$, where d is the distance from the school in feet and t is the walking time in minutes.

Who arrives at school first? By how many minutes?

- A. Mike arrives first, 4 minutes faster than Tim.
- B. Mike arrives first, 10 minutes faster than Tim.
- C. Tim arrives first, 2 minutes 30 seconds faster than Mike.
- D. Tim arrives first, 5 minutes 50 seconds faster than Mike.

13. 8.2.A

In the figure, lines A, B, and C all intersect at point O.

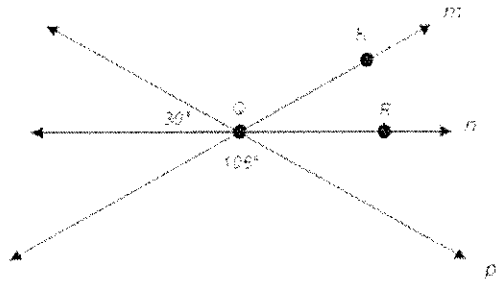


What is the measure of angle EOD?

- A. 36°
- B. 54°
- C. 90°
- D. 126°

14. 8.2.A

In the figure, lines m, n, and p intersect at point O



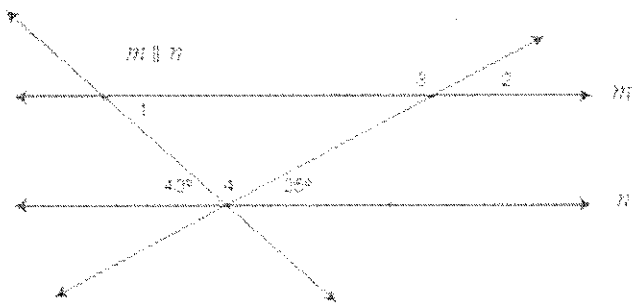
Determine the measure of $\angle KOR$.

Write your answer on the line.

What is the measure of $\angle KOR$? _____ ° (degrees)

15. 8.2.B

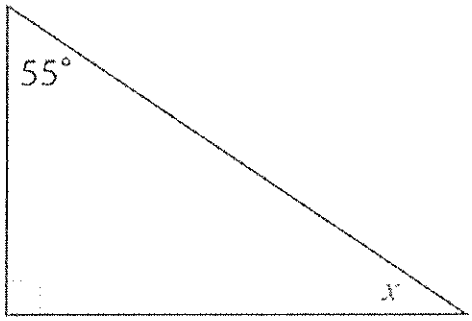
Determine the measure of angle 3.



- A. 25°
- B. 40°
- C. 115°
- D. 155°

16. 8.2.C

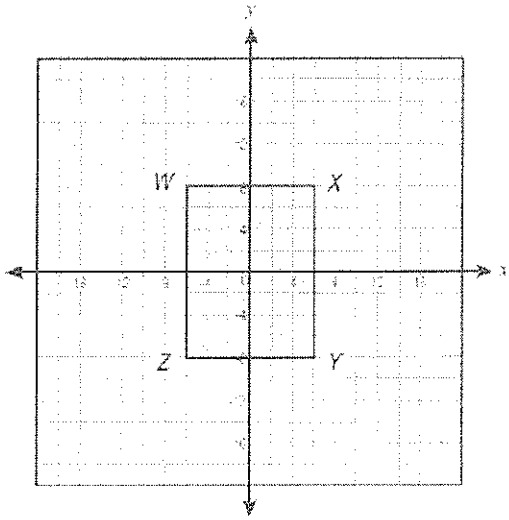
Determine the measure of angle x.



- A. 35°
- B. 45°
- C. 55°
- D. 125°

17. 8.2.D

Rectangle WXYZ is shown on the coordinate grid.



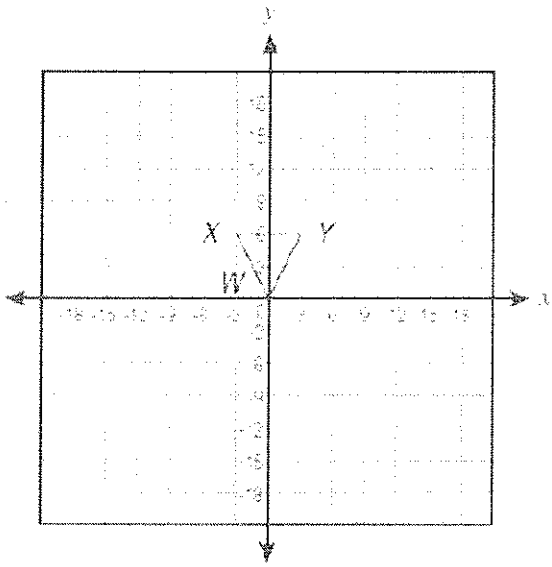
Rectangle WXYZ is dilated by a factor of $\frac{1}{2}$ centered at the origin to create rectangle $W'X'Y'Z'$.

What are the coordinates of W'?

- A. (−12, −16)
- B. (−3, 4)
- C. (−3, 8)
- D. (−12, 8)

18. 8.2.D

Triangle WXY is shown on the coordinate grid.



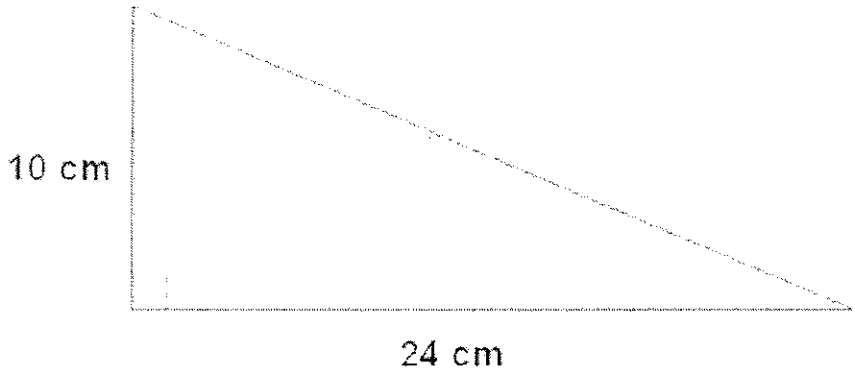
Triangle WXY is dilated by a factor of 3 centered at the origin to create triangle $W'X'Y'$.

What are the coordinates of X'?

- A. $(-9, -6)$
- B. $(-6, 9)$
- C. $(-9, 18)$
- D. $(9, 18)$

19. 8.2.F

Drew cut a piece of glass into the shape of a right triangle The measurements of two sides of the triangle are given in centimeters (cm).

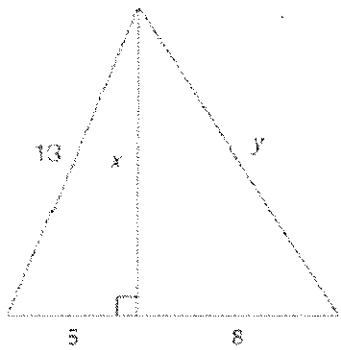


Which expression represents the length of the third side of the triangle?

- A. $\sqrt{10^2 + 24^2}$
- B. $10^2 + 24^2$
- C. $\sqrt{10 + 24}$
- D. $10 + 24$

20. 8.2.F

A triangle is shown with measurements in feet.

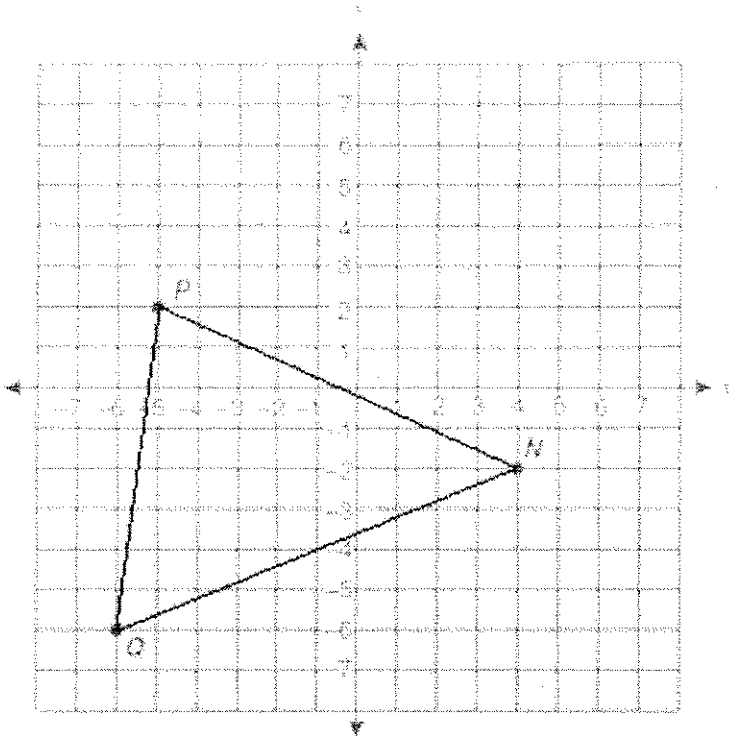


Determine the value of y to the nearest tenth of a foot.

- A. 12.0 ft
- B. 14.4 ft
- C. 15.3 ft
- D. 17.7 ft

21. 8.2.G

Triangle PNQ is drawn on a coordinate plane.



What is the length of line segment PN to the nearest unit?

- A. 13 units
- B. 10 units
- C. 9 units
- D. 4 units

22. 8.2.G

Point A is located at $(-2, 7)$ in Quadrant II.

Point B is located at $(x, 2)$ in Quadrant I.

The length of AB is $\sqrt{74}$

Determine the value of x.

Write your answer on the line.

What is the value of x? _____

23. 8.3.A

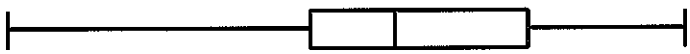
Captain Bob owns two charter boats, the *Sock-Eye-To-Me* and *Old Gus*, which take tourists on fishing trips. On Saturday, the *Sock-Eye-To-Me* took four people fishing and returned with eight fish weighing 18, 23, 20, 6, 20, 22, 18, and 20 pounds. On the same day, *Old Gus* took five people with fishing and returned with ten fish weighing 38, 18, 12, 14, 17, 42, 12, 16, 12, and 14 pounds.

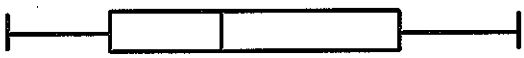
What influence, if any do outliers have on the particular statistics for these data.

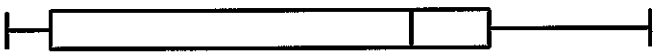
- o A. Outliers make *Old Gus* look higher, but really *Old Gus* has a lower mean (average) fish weight.
- o B. An outlier makes *Sock-Eye-To-Me* look worse, but really *Sock-Eye-To-Me* has a greater range.
- o C. Outliers make *Old Gus* look higher, but outliers also made *Old Gus* have a lower mode.
- o D. Outliers make *Old Gus* have a higher mean, but *Sock-Eye-To-Me* still has a higher median.

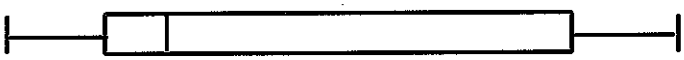
24. 8.3.B

The box-and-whisker plots below all have the same scale. Compare them and determine which box-and-whisker plot has the lowest median.

o A. 

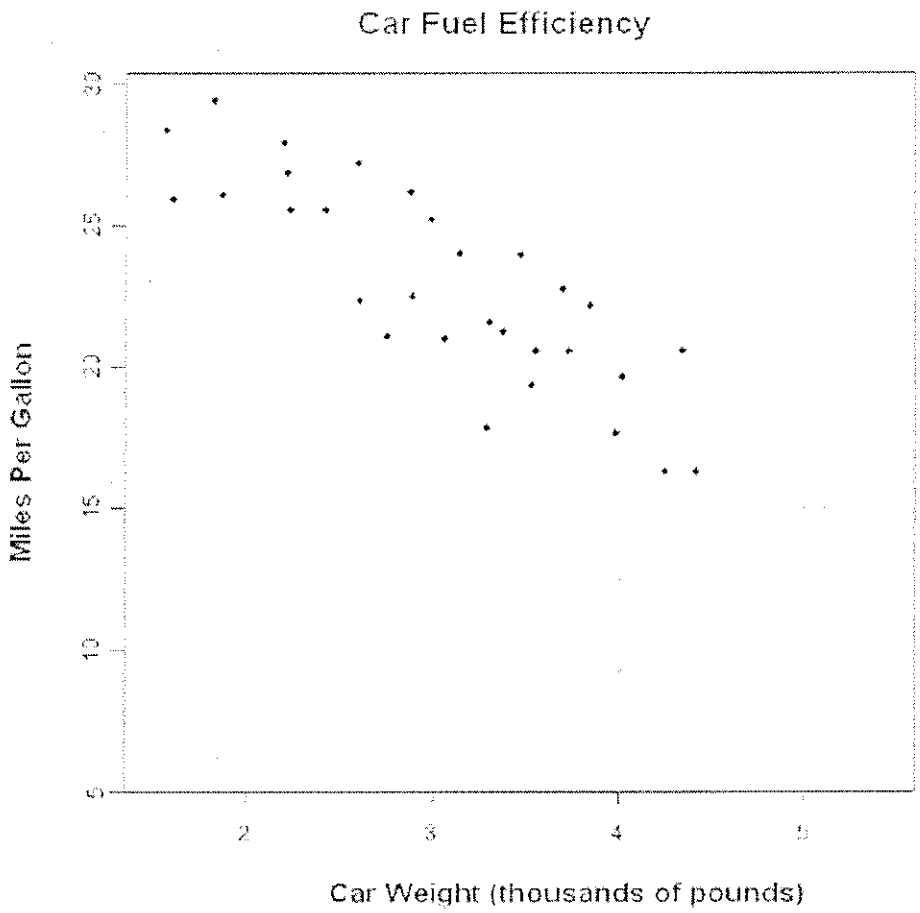
o B. 

o C. 

o D. 

25. 8.3.C

Rory is researching the fuel efficiency of several cars built this year. He found this scatterplot online. He wants to use the scatterplot to predict the fuel efficiency in miles per gallon of a car that weighs 5,000 pounds.



- Draw a trend line that models the data in the scatterplot. You must use a ruler or straightedge.
- Use your trend line to predict the fuel efficiency in miles per gallon for a car that weighs 5,000 pounds.

What is the predicted fuel efficiency for a car that weighs 5,000 pounds?

_____ miles per gallon

26. 8.3.F

The letter "e" is the most commonly used letter in the English language. In a list of 12 words, the letter "e" appears in 8 of the words. Two different words from the list are randomly chosen.

What is the probability that the letter "e" appears in both words?

- A. $\frac{2}{3}$
- B. $\frac{1}{3}$
- C. $\frac{14}{33}$
- D. $\frac{7}{18}$

27. 8.3.F

Employees at a local grocery store drive to work every day. There are 5 employees but only 3 spots in the parking lot for employees. Each day, 2 employees park on the street. Each employee has the same chance of parking in one of the spots in the parking lot.

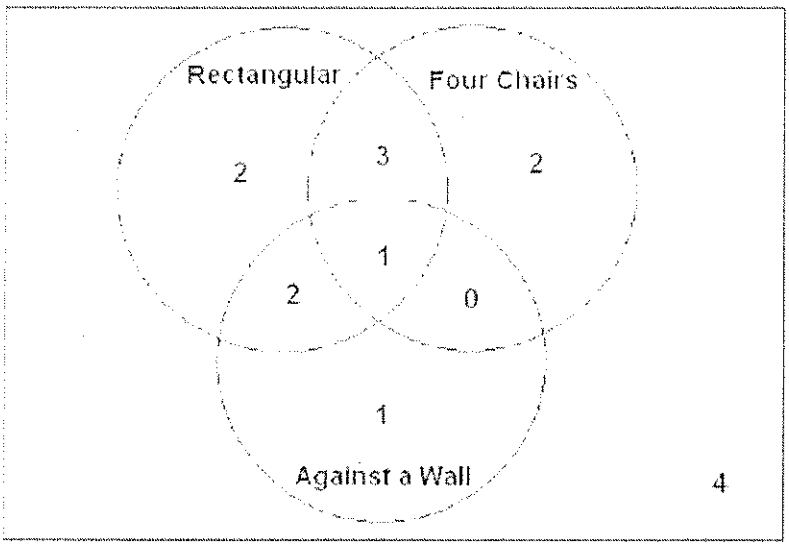
What is the probability that the same employee will park in the parking lot two days in a row?

- A. $\frac{9}{25}$
- B. $\frac{4}{10}$
- C. $\frac{6}{10}$
- D. $\frac{21}{25}$

28. 8.3.G

In the school library there are several tables. The Venn diagram shows how many tables are rectangular, how many tables have four chairs, and how many tables are pushed against a wall.

Tables in the School Library



How many tables in the school library have four chairs?

- A. 8 tables
- B. 6 tables
- C. 4 tables
- D. 2 tables

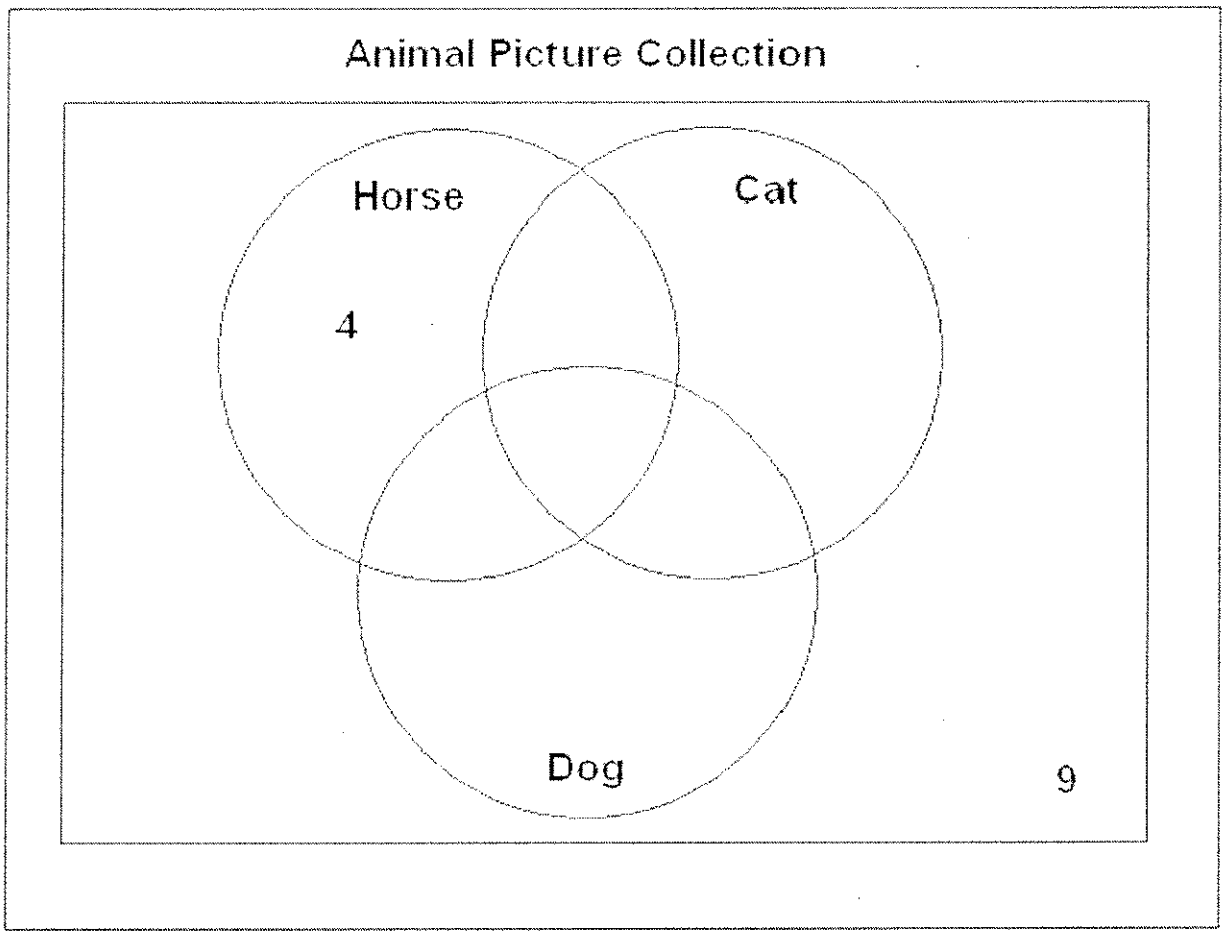
29. 8.3.G

Frida is sorting a collection of animal pictures.

— There are a total of 48 pictures in the collection.
— 2 pictures have both a cat and a dog, but not a horse.
— 10 pictures have a horse, a cat, and a dog.
— 18 pictures have both a horse and a dog.
— 8 pictures have only a dog.
— 25 pictures have a horse.

Frida started to make a Venn diagram to organize the pictures in the collection.

Complete the Venn diagram to represent all the pictures in the collection.



30. 8.3.G

Jack's Deli makes sandwiches that include a choice of one type of bread, one type of chees, and one type of meat. How many different sandwiches could be made given 4 different bread types, 3 different cheeses, and 5 different meats?

- A. 12
- B. 48
- C. 60
- D. 120

31. 8.4.A

The second nearest star to Earth is approximately 39,700,000,000,000 kilometers away.

What is 39,700,000,000,000 written in scientific notation?

- A. 3.97×10^{11}
- B. 3.97×10^{12}
- C. 3.97×10^{13}
- D. 3.97×10^{14}

32. 8.4.C

Determine the value of the expression.

$$\frac{4^2 \times 4^5}{4^6}$$

Write your answer on the line.

What is the value of the expression? _____

33. 8.5.C (8.2.F)

The dimensions of a room are 9 feet long by 12 feet wide. What is the furthest distance between any two points on the floor of the room?

- A. 12 ft
- B. 15 ft
- C. 21 ft
- D. 42 ft

34. 8.5.G (8.2.B/8.2.C)

In the diagram, lines p, q and r are parallel. Line s and line t are transversals.

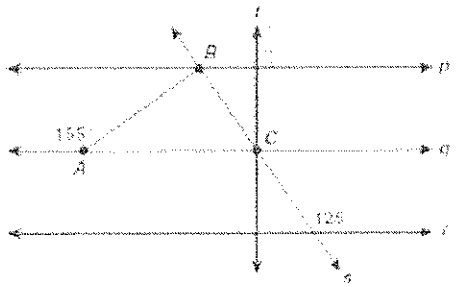


Figure is not drawn to scale

— Makya says triangle ABC is an acute triangle.
— Delmon says triangle ABC is an obtuse triangle.
— Tore says triangle ABC is a right triangle.

Determine which student is correct.

Support your conclusion using words and/or numbers.

Which student is correct? _____

35. 8.5.G (8.4.A/8.4.B)

Lana, Johanne, and Fatima are writing a report on four island nations.

Population of Four Island Nations
in 2006

Island Nation	Population
Australia	2×10^7
New Caledonia	2×10^5
New Zealand	4×10^6
Palau	2×10^4

Lana says that the population of Australia was approximately 80 times the population of Palau.

Johanne says that the population of Australia was approximately 100 times the population of New Caledonia.

Fatima says that the population of Australia was approximately 5 times the population of New Zealand.

Determine which student is correct.

Support your conclusion using numbers from the table.

Which student is correct? _____